

CHEMICAL HYGIENE PLAN

CARLETON COLLEGE
CHEMISTRY DEPARTMENT
(revised November 2012)

TABLE OF CONTENTS

1. Individual Responsibilities	2
2. Emergency Preparedness	3
3. Personal Apparel and PPE	4
4. Chemical Management	4
5. Laboratory Housekeeping	5
6. Standard Operating Procedures	5
7. Emergency Action Plan	6
8. Safety Equipment	8
9. Chemical Waste Policies	8
10. Required Training	9
11. Safety Rules	9
12. Facility Design and Laboratory Ventilation	9
13. Medical and Environmental Monitoring	10
14. Compressed Gas Safety	10
Other Information	10
Safety Rules	Appendix 1
Peroxidizable Chemicals	Appendix 2
Treatment of Injured Persons	Appendix 3
Standard Procedure for Using Respirators	Appendix 4

For the purposes of this standard, "laboratory" is defined as any facility where hazardous chemicals are used in relatively small amounts on a non-production basis. While this plan was instituted for the purpose of complying with OSHA employee regulations, it should be recognized that no employee has a safe workplace unless all laboratory workers work safely. Therefore these rules will be applied to all laboratory students, student employees, faculty and staff.

1. INDIVIDUAL RESPONSIBILITIES

DEPARTMENT CHAIR

- Provides the Chemical Hygiene Officer (CHO) with the support necessary to implement and maintain the Chemical Hygiene Plan (CHP)
- Serves as chair of the departmental safety committee

CHEMICAL HYGIENE OFFICER

- Maintains and revises the chemical hygiene plan
- Revises the safety rules in conjunction with the safety committee
- Monitors procurement, use, storage and disposal of chemicals
- Conducts regular inspections of laboratories
- Maintains inspection, training and inventory records

DEPARTMENTAL SAFETY COMMITTEE

- Reviews incident reports and makes recommendations regarding proposed changes in laboratory procedures

FACULTY LABORATORY SUPERVISORS

- Read, understand and follow safety rules
- Plan and conduct laboratory classes or research projects in accordance with the CHP
- Promotes good housekeeping practices
- Communicates appropriate portions of the CHP to students
- Uses CHP as appropriate
- Reports any injuries or exposures.

In addition, personnel will adhere to the following guidelines:

When designing experiments, consideration should be given to minimizing the possibility of exposure to hazardous chemicals.

The experiments designated by the faculty should be appropriate for the students' level of competence.

No chemicals and chemical procedures will be used in academic laboratories unless approved by a faculty member or the Laboratory Manager. Prior to beginning a laboratory exercise, the hazards associated with the chemicals to be used will be explained to students. This will be done in the presence of the laboratory teaching assistants, if any are assigned.

Faculty shall show the location of and explain the use of eye washes, showers, fire blankets and fire extinguishers at the beginning of the first laboratory exercise of each term.

Faculty shall ascertain if any of the laboratory students have sensitivity or allergy to any chemicals.

Faculty or the chemical hygiene officer may, whenever they see the necessity, require students to be familiar with the information in material safety data sheets for chemicals to be used in their laboratories.

All work, except melting point determination, in 100 level and 200 level laboratories will be done in the presence of a faculty member or laboratory teaching assistant. Work may be done outside of the normal laboratory period by students in these courses only with the specific consent of the faculty member in charge of the course during normal working hours. When work is to be done outside of regularly scheduled laboratory time, Laboratory Manager and Stockroom Technician should be informed in advance by the appropriate faculty member and either the faculty member or a laboratory teaching assistant must be present. The faculty members responsible for 100 or 200 level

courses must be available on campus at any time students are doing laboratory work in those courses or designate another faculty member to be available in his or her absence.

Students in 300-level laboratory courses may work alone with reagents if there is another person in an adjacent laboratory with the door connecting them open and with the permission of the instructor for that laboratory. In such cases, the Laboratory Manager and the Stockroom Technician will be notified that permission has been given.

Undergraduate students working on directed research projects will be allowed to work alone in the laboratory with the approval of the faculty research advisor. This permission will be given for each particular occasion and the Laboratory Manager or Stockroom Technician will be notified and given specific information regarding location and time. Otherwise there must be another person in the laboratory or in an adjacent laboratory with the door connecting them open.

Work involving potential overexposure to toxic fumes or dusts or nuisance odors will be done in a properly functioning fume hood.

No person who does not have a chemistry degree or requisite knowledge shall initiate a chemical reaction that has not been authorized by a faculty member or the Laboratory Manager.

No person without a chemistry degree will undertake the synthesis of a controlled substance.

Preparation and/or detonation of explosives or explosive air/vapor mixtures will be done only when authorized in writing by and under the direct supervision of a faculty member or the Laboratory Manager.

Containers which hold the products of individual reactions must be labeled with the contents, the date and the name of the person who produced them. Initials or abbreviations may not be used in place of chemical names or the producers' names.

[\(back to table of contents\)](#)

2. EMERGENCY PREPAREDNESS

Fire extinguishers will be kept ready to use. Facilities will be notified to replace any extinguisher which has been used even if it shows little use.

Eye washes and safety showers will be kept in operating condition at all times.

All laboratories will have signs saying that eye protection is required. Signs will also indicate those laboratories where particularly hazardous chemicals are being used. These signs will indicate the type of hazard involved.

Neutralizing agents, baking soda for acid spills and citric acid for base spills will be placed in each laboratory. A spill control kit for containing solvent spills is located in the 2nd floor hallway.

If a fire alarm sounds while students are in laboratory, faculty will see that all students leave the building and stockroom supervisors will do the same for all stockroom workers and also see that fire doors and windows get closed.

All laboratories will have Emergency Notification signs on the hallway outside the room, adjacent to one of the doors leading to the laboratory.

[\(back to table of contents\)](#)

3. PERSONAL APPAREL AND PERSONAL PROTECTIVE EQUIPMENT

Eye protection will be worn by all persons in the stockroom or any laboratory where work with chemicals is occurring. Goggles must be worn in 100- and 200- level laboratory courses by both students and laboratory teaching assistants. Those in 300-level laboratory courses may wear appropriate safety glasses. When conditions dictate, those in 300-level laboratory courses may need to wear more eye protection. Instructors will enforce the rules concerning safety eyewear and may dismiss students for non-compliance. Borrowing goggles is discouraged for health reasons. Students must own their own goggles.

Bare feet will not be allowed in laboratories.

Appropriate clothing that provides splash protection will be worn in laboratories. Shoes that have open toes or perforations are not suitable for laboratory. Footwear must cover no less than half of the upper foot and go completely around the back of the heel. Instructors and stockroom supervisors may require students and employees to wear aprons and/or lab coats.

When using chemicals that are hazardous through skin contact, gloves will be worn. Selection of proper gloves will be based on the information contained in the Material Safety Data Sheet. The stockroom will stock nitrile gloves. In most cases, this type of glove provides adequate protection from exposure due to incidental spills or splashes. They are never to be used for immersion of the hands into any hazardous chemical. If immersion is necessary, proper gloves will be ordered for this purpose.

[\(back to table of contents\)](#)

4. CHEMICAL MANAGEMENT

Procurement of chemicals will normally be done through the Chemistry Stockroom and the Material Safety Data Sheet will be kept in the instrument room, Mudd 271. Those who order their own chemicals will be responsible for their own chemical inventory lists and MSDS files.

Ideally, there should be a Material Safety Data Sheet (MSDS) available for any chemical used in department laboratories. In the absence of a Material Safety Data Sheet, other sources should be used to ascertain the hazards. Either the faculty member or the Laboratory Manager may require that the user(s) and/or the laboratory teaching assistants review the information contained therein. An employee may demand to see a MSDS before using a chemical. If none is available the employee may decline to undertake the project. In such cases the employee must be given a different project and may not be penalized in any way for this action.

Chemical containers will be labeled with the chemical name of the contents. This includes laboratory glassware which contains laboratory chemicals whenever the container will not be emptied before the end of the laboratory session. The full name of the chemical or reagent will normally be used. Abbreviations are not acceptable unless all who may be involved with the container of chemical or reagent are thoroughly familiar with the abbreviation.

All containers of hazardous chemicals or reagents will be labeled with the appropriate signal word (danger, warning or caution) and with an indication of the type of hazard.

Foodstuffs to be used for laboratory experiments will be clearly labeled "NOT FOR HUMAN CONSUMPTION".

Only necessary chemicals will be stored in laboratories.

Frequently used chemicals will be stored in Mudd 264. Bulk flammable liquids that are frequently used will be stored in Mudd 264, in the flammable storage cabinets or safety cans. Chemicals requiring low temperature storage will be kept in the refrigerator in Mudd 264 or in appropriate refrigerators in the laboratories.

Seldom used flammable chemicals will be kept in the Olin G23 flammable storage room. Other seldom used

chemicals will also be stored in Olin G23.

In the stockroom, 2.2 liter bottles of concentrated acids or aqueous ammonia will always be stored on bottom shelves.

Chemical inventory for the stockroom and Olin G23 will be reviewed annually. If a chemical has not been used for over four years consideration will be given to disposing of it. The inventory of chemicals in the department will be kept to a minimum.

Chemical containers will be kept closed except when the contents are being withdrawn.

The Laboratory Manager will use a storage system which segregates chemicals on the basis of reactivity and toxicity to the extent possible in the available space. No incompatible chemicals will be stored adjacent to each other.

Peroxidizable chemicals will be discarded before they become dangerous to handle. Refer to Appendix 2 for storage periods for these.

[\(back to table of contents\)](#)

5. LABORATORY HOUSEKEEPING

Personal property that is not necessary for the laboratory exercise (i.e., coats, umbrellas, etc.) should not be taken into the laboratory in order to minimize crowding and clutter. To prevent theft, backpacks may be stored in laboratories during laboratory exercise times if they do not present any hazard or clutter.

Laboratory students should be considerate and clean their laboratory spaces when they are finished with the daily laboratory exercise.

[\(back to table of contents\)](#)

6. STANDARD OPERATING PROCEDURES

In academic laboratories the laboratory text will be the standard operating procedure. At other times and when necessary, faculty will provide instruction for the use of chemicals and apparatus.

Procedures for the various lecture demonstrations will be composed and kept with the demonstration apparatus.

The term "designated area" refers to a laboratory, portion of a laboratory, or a fume hood having signs posted declaring the hazard present within. When a designated area is declared, only the person or persons declaring it will work within it and will work only on the project for which it was declared. As soon as the hazard for which the designated area was declared ceases to exist, the designated area ceases to exist and the signs must be removed.

Procedures involving ultraviolet or laser light may require extra protection for eyes. People involved with lasers will wear eye protection that is effective for the type of laser light in use. The area in which the laser is being used will be separately enclosed and warning devices will be in place and used when appropriate. Devices producing ultraviolet light will be enclosed with opaque material and warning signs will be posted.

Procedures involving pyrophoric substances require a designated area. This may be a fume hood exclusively for the use of the pyrophoric substance or a portion of laboratory bench that is at least three meters from other workers. All persons who could possibly be exposed to the substance will be warned in advance of its use. The

area in which the substance is used will be designated by warning signs.

Procedures involving the generation and/or use of diazomethane will be done in an isolated laboratory, i.e. no one other than those involved in the use of diazomethane will be working in that laboratory. All entrances to the laboratory will be posted with warning signs stating the hazard.

Procedures involving the use of hydrofluoric acid require a designated area. This will be a fume hood for the exclusive use of hydrofluoric acid. All persons who could possibly be exposed to the substance will be warned in advance of its use. The area in which the substance is used will be designated by warning signs.

The use of tert-butylthiol or any other low-molecular weight thiol requires notification of campus security due to the fact that the strong odor resembles a natural gas leak.

There may be other reasons for the Chemical Hygiene Officer or a faculty member to institute a designated area.

Unattended reactions involving cooling water or other water flow require the use of a water flow monitor.

Due to the possibility of container failure, no person should ride the elevator with the large containers of liquid nitrogen.

Movement of bottles, one liter or larger, of liquid reagents will be done having the bottle of reagent in a secondary containment vessel.

[\(back to table of contents\)](#)

7. EMERGENCY ACTION PLAN

SPILLS

All spills will be cleaned up immediately by the persons who caused them, except for spills of very hazardous materials. These will be cleaned up by a laboratory teaching assistant, faculty member, stockroom personnel or other department employee. If a spill presents an inhalation hazard, all persons will evacuate the entire laboratory. No one will be allowed to continue to work in the vicinity of a hazardous chemical spill.

If chemicals are spilled on a person's clothing, that person should go to a sink or safety shower (depending on the extent of the spill) and rinse thoroughly with water. Clothing that is soaked with the chemical should be quickly removed.

If the spill is mercury, immediately clear the area of all uncontaminated persons and notify someone in the stockroom. If the spill is on a person, that person should remain where he/she is and call for help. Do not remove anything from the area until it has been decontaminated. **DO NOT SPREAD THE MERCURY SPILL!** The stockroom staff will clean up the mercury.

Any spill that creates a hazardous condition, whether it is cleaned up easily or not requires a report to the Chemical Hygiene Officer (CHO). If the spill occurs during working hours and is easily remedied, make the report as soon as possible. If the spill occurs during working hours and cannot be easily remedied, report it to the CHO immediately. If the spill occurs outside of working hours and cannot be easily remedied, notify the CHO immediately (the emergency notification information is posted near the stockroom, Mudd 264). In addition, notify campus security and other people in the building and put up spill warning tape.

INJURIES

If an injury breaks the skin, inform the laboratory instructor or laboratory teaching assistant immediately. Rinse the cut with cold water and cover with sterile bandage from the first aid kit located mid second floor hallway of Mudd. Encourage the injured to get medical attention. If the injury is serious someone must either accompany the injured to a health professional or paramedics should be called.

If chemicals get in the eye, go directly to the eyewash and begin flushing with water (flushing for 15 minutes is recommended). Inform the laboratory instructor or laboratory teaching assistant.

If ingestion or inhalation of a chemical occurs, inform the laboratory instructor or laboratory teaching assistant immediately.

In case of minor burns, hold the burned area in a stream of cold water until pain subsides and then cover with a paste of baking soda. Do not use grease or burn ointment. Advise the injured person to get medical attention.;

If an injury occurs outside of working hours a report must be made to the CHO as soon as possible. If an injury requires medical attention, call security for medical assistance and immediately notify the CHO (the emergency notification information is posted near the stockroom, Mudd 264).

FIRE

If a person's clothes catch on fire, that person should walk to a sink or safety shower, depending on the location of the fire on the person, and drench the area to extinguish the fire.

If a fire occurs on a laboratory bench it may be smothered with a lab towel, if small, or a fire extinguisher may be used. It should be noted that a carbon dioxide extinguisher is **NOT** suitable for fires involving some highly reactive chemicals. If these chemicals are being used the workers should be informed of the fact and the SOP for that chemical should indicate the preferred method of extinguishing the fire. Extinguishing a laboratory bench fire with water should **NEVER** be attempted.

If a fire occurs during working hours and is extinguished easily, report it to the CHO as soon as possible. If the fire cannot be easily extinguished pull the nearest fire alarm. If a fire occurs outside of working hours and a fire extinguisher must be used, a report must be immediately made to campus security and the CHO (the emergency notification information is posted near the stockroom).

See also appendix 3

[\(back to table of contents\)](#)

8. SAFETY EQUIPMENT

Eyewashes will be tested on a weekly basis by running the eyewash. Water will be run until it is free of rust. Water must also be at a comfortable temperature. The output must be at least one-half gallon per minute. Attention will be paid to the pattern of the water output. It must be such that both eyes may be thoroughly flushed and that the face wash spray is uniform and complete. Each time an inspection is done it will be noted on an inspection tag on that eyewash. Any eyewash that does not meet these criteria will be taken out of service until repairs are made by shop personnel. Repairs will be done promptly.

Safety showers will be tested on a monthly basis by running the shower into a bucket. Water will be run until it is free of rust (it is from the same water source that feeds eyewashes). Water must also be at a comfortable temperature. Attention will be paid to the flow volume from the shower. It must be at least thirty gallons per minute, sufficient to completely drench the user in less than one minute. Each time an inspection is done it will be

noted on an inspection tag on that shower. Any shower that does not meet these criteria will be taken out of service until repairs are done by shop personnel. Repairs will be done promptly.

An emergency–escape, self–contained breathing apparatus will be located near the mid–point of the hallway on the second floor of Mudd Hall. This breathing apparatus will be inspected monthly. It must have a full charge of air and a clean hood. If it does not meet these criteria the Laboratory Manager will rectify the problem(s) immediately.

Cartridge–type respirators, available for use where needed, will be of the disposable type. They will be used only once and discarded. See also Appendix 4.

[\(back to table of contents\)](#)

9. CHEMICAL WASTE POLICIES

Every effort will be made to minimize the production of hazardous waste.

No untreated hazardous waste will be poured down the drain or placed in a wastepaper basket. Specifically labeled waste containers will be made available for these.

No reactive chemical waste will be mixed with other wastes.

Waste solvents will be recycled whenever possible.

Any combining of wastes must be approved by the Hazardous Waste Coordinator.

All waste containers will be accurately labeled.

The Hazardous Waste Coordinator will arrange for disposal of hazardous waste.

Broken glass will be discarded in a broken glass container. Paper may not be discarded in broken glass containers. Glassware with chemical residue must be rinsed or the residue allowed time to evaporate before discarding in a broken glass container.

Sharps containers will be provided for disposal of needles and razor blades.

[\(back to table of contents\)](#)

10. REQUIRED TRAINING

All students employed in laboratories including laboratory teaching assistants, stockroom assistants and research students will be trained before beginning their assignments. Faculty members who are involved with laboratory work and stockroom personnel are encouraged to view the training video.

Training will include:

- a) Procedures detailed in this Chemical Hygiene Plan
- b) Hazards that will likely be encountered in the laboratories
- c) Protective measures to be taken against overexposure

d) How to extract information from a Material Safety Data Sheet

Records of training, containing names and dates, will be kept on file either in the department office or in the Laboratory Manager's office.

In addition to the training described above, research students will receive training on specific laboratory safety procedures related to their research project. The faculty advisor for the research project will be responsible for this additional safety training.

[\(back to table of contents\)](#)

11. SAFETY RULES

Students will be given copies of the safety rules (Appendix 1) at the beginning of each course which involves laboratory work or at the beginning of summer research. They will sign statements that indicate they have read and understood and will follow the rules. Faculty may, at times, test the students' knowledge of the safety rules.

See Appendix 1

[\(back to table of contents\)](#)

12. FACILITY DESIGN AND LABORATORY VENTILATION

Fume hoods will be checked each month using the built-in meters. Hoods will also be tested with the anemometer whenever such a request is received from a laboratory worker. A fume hood should have a face velocity of 100 feet/minute when the sash is at least half open. The face velocity of a hood when it is fully open should not be greater than 175 feet/minute or there may be excessive turbulence which will result in escape of hazardous fumes. If anemometer results are inconclusive further testing will be done using a smoke device to determine whether a hood is allowing fumes to escape into the laboratory area. Any hood found to be unsatisfactory will be taken out of service until repairs are made by facilities personnel and further tests indicate it is properly functioning. Repairs will be done promptly.

[\(back to table of contents\)](#)

13. MEDICAL AND ENVIRONMENTAL MONITORING

Medical consultations and/or examinations will be provided by Carleton College at no cost to an employee under the following circumstances:

- a) The employee develops symptoms which are consistent with overexposure to a hazardous chemical to which he or she may have been exposed on the job
- b) A spill or leak of a hazardous chemical occurs in a laboratory which results in possible overexposure
- c) Monitoring indicates that an exposure level has occurred in excess of that which is permitted.
- d) Authorization for such examinations must come from the Associate Dean's office.

Such medical examinations and consultations will be done by a licensed physician or under a licensed physician's

direct supervision. The physician will be informed, by an appropriate College representative, of the employee's symptoms, the conditions of the exposure and the substance to which the employee was exposed.

The physician will inform the employee and Carleton College of the results of his or her findings and recommendations for further examination or treatment.

The physician will provide Carleton College with a statement that the employee has been given the results of the examination and also any condition which the employee has, as a result of the exposure, which increases the employee's risk of medical problems in the future.

Records of medical examinations or consultations required under this section will be kept on file in the Associate Dean's office for a period of thirty years following the end of the employee's tenure.

[\(back to table of contents\)](#)

14. COMPRESSED GAS SAFETY

Compressed gas cylinders will have covers in place whenever they are moved. All cylinders must be physically supported except when being moved.

The valve on a cylinder of compressed gas should never be opened without a regulator attached.

[\(back to table of contents\)](#)

OTHER INFORMATION - CHEMICAL HYGIENE OFFICER

The Chemical Hygiene Officer will be appointed by a College administrator who has broad authority to do so. Final authority to confirm or deny the appointment will rest with the President of the College.

Brian Mars was appointed Chemical Hygiene Officer by Steve Galovich, Associate Dean, on May 22, 1991.

Brian Mars was reappointed Chemical Hygiene Officer by Beverly Nagel, Associate Dean, in September 2008.

Brian Mars was reappointed Chemical Hygiene Officer by Nathan Grawe, Associate Dean in 2011.

[\(back to table of contents\)](#)

APPENDIX 1

SAFETY RULES

All work in 100 and 200 level laboratories will be done in the presence of a faculty member or a laboratory teaching assistant. Work will be done outside of the normal laboratory period by students in these courses only with the specific consent of the faculty member in charge of the course and the work must be supervised by the faculty member or a TA. Work in advanced lab and independent study will be only done with another person present in the immediate laboratory or in an adjacent laboratory.

Eye protection will be worn by all persons in the stockroom or any laboratory where work with chemicals is occurring. Goggles must be worn in 100- and 200- level laboratory courses. Those in 300-level laboratory courses may wear appropriate safety glasses. When conditions dictate, those in 300-level laboratory courses may need to wear more eye protection. Instructors will enforce the rules concerning safety eyewear and may dismiss students for non-compliance. Borrowing goggles is discouraged for health reasons. Students must own their own goggles.

Appropriate clothing that provides splash protection will be worn in laboratories. Shoes that have open toes

or perforations are not suitable for laboratory. Footwear must cover no less than half of the upper foot and go completely around the back of the heel. Instructors and stockroom supervisors may require students and employees to wear aprons, lab coats and/or foot coverings.

Bare feet will not be allowed in laboratories.

Eating, drinking or smoking in laboratory is prohibited.

Horseplay, rough-housing and practical jokes are prohibited in laboratories.

All laboratory workers will be shown the location and taught the proper use of safety showers, eye washes, fire extinguishers and fire blankets.

Filling pipets by mouth suction is prohibited.

Chemical containers will be kept closed except when the contents are being withdrawn.

No flame heating devices will be used in an area where volatile flammable solvents are used.

Work involving potential overexposure to toxic fumes or dusts or nuisance odors will be done in a properly operating fume hood.

All laboratory workers are strongly advised to wash hands thoroughly either before leaving the laboratory or immediately following laboratory work.

No set of rules can possibly cover every situation that might occur in a laboratory. Everyone working in a laboratory must be aware that it is a potentially hazardous area and they should think carefully about safety precautions at all times.

IN CASE OF FIRE:

- a. If your clothing catches fire, walk slowly to the safety shower and pull the cord, or walk slowly to the fire blanket and wrap it around yourself.
- b. If anything on your bench top catches fire, call for help and use the nearest fire extinguisher. Do not attempt to put out the fire with water.

IN CASE OF A CHEMICAL SPILL:

- a. If on your person, go to a sink or safety shower and rinse thoroughly with water. Quickly remove any clothing that may be soaked with the chemical.
- b. If on a bench or the floor, spills will be cleaned up immediately by the persons who caused them, except for spills of very hazardous materials. These will be cleaned up by a laboratory teaching assistant, faculty member or someone designated by stockroom staff. Students will not be allowed to continue to work in the vicinity of a chemical spill.
- c. If the spill is mercury, immediately clear the area of all uncontaminated persons and notify someone working in the stockroom. If the spill is on your person, remain where you are and call for help. Do not remove anything from the area until it has been decontaminated. DO NOT SPREAD THE MERCURY SPILL! The stockroom staff will clean up the mercury.

IN CASE OF INJURY:

- a. If an injury breaks the skin, inform the laboratory instructor or laboratory teaching assistant immediately. Rinse the cut with cold water and cover with sterile bandage from the first aid kit located mid second floor hallway in Mudd. Encourage the injured to get medical attention. If the injury is serious someone must either accompany the injured to a health professional or paramedics should be called.
- b. If chemicals get in the eye, go directly to the eyewash and begin flushing with water (flushing for 15 minutes is recommended). Inform the laboratory instructor or laboratory teaching assistant.
- c. If ingestion or inhalation of a chemical occurs, inform the laboratory instructor or laboratory teaching assistant immediately.
- d. In case of minor burns, hold the burned area in a stream of cold water until pain subsides and then cover with a paste of baking soda. Do not use grease or burn ointment. Advise the injured to get medical attention.

[\(back to table of contents\)](#)

APPENDIX 2

PEROXIDIZABLE CHEMICALS

The following form peroxides after opening upon exposure to air. Hazardous concentrations of peroxides develop without distilling or evaporating. Discard within twelve months after opening.

diethyl ether	di-isopropyl ether
ethylene glycol	dimethyl ether (glyme)
dicyclopentadiene	cumene
tetrahydronaphthalene	cyclohexene

The following form peroxides after opening upon exposure to air. Hazardous concentrations of peroxides do not develop until concentrated by distilling or evaporating. Discard within eighteen months after opening.

acetal	dioxane
tetrahydrofuran	vinyl ethers
vinyl acetate	vinyl chloride
methylcyclopentane	

The following form peroxides after opening upon exposure to air. Hazardous polymerization may occur following the formation of peroxides. Discard within eighteen months after opening.

styrene	butadiene
---------	-----------

[\(back to table of contents\)](#)

APPENDIX 3

TREATMENT OF INJURED PERSONS

The employee who first responds to an incident that caused an injury will be in charge of providing treatment until relieved by another employee who is more qualified. Action must be taken immediately, so don't wait for someone

else to do it. Follow these steps:

ASSESS THE CONDITION OF THE INJURED PERSON

Is the person unconscious, not breathing, in severe pain, bleeding profusely, unable to move, missing limbs or digits? Is pulse absent? Is there a possibility of back or neck injury? If any of the answers to any of these are positive **CALL 911** or have someone else call. This will bring police, rescue and an ambulance. After calling 911, call campus security at 4444.

CALL SECURITY 4444

...or, if someone else is available, have that person call security. The caller should give his or her name, the room where the injured is located, the condition of the injured and answer any questions from the officer who answers. Security will also consider whether an ambulance is necessary.

GIVE TREATMENT

Do whatever you know how to do to stop bleeding or restore pulse or respiration. If the situation is life threatening, doing something is better than nothing.

DO NOT MOVE A PERSON WHO MAY HAVE BACK OR NECK INJURY

Unless you or the injured are in immediate danger from the environment, the less the injured is moved, the less chance there is of complicating the injury.

IF YOU CAN'T DECIDE WHETHER OR NOT TO CALL 911, CALL 911

If you must err, take more precautions than necessary.

[\(back to table of contents\)](#)

APPENDIX 4

STANDARD PROCEDURES FOR USING RESPIRATORS

The Chemistry Department will provide disposable canister type respirators for use during extended work periods in the flammable storage room and whenever necessary to work in an area where the atmosphere cannot be kept free of hazardous or nuisance vapors. These respirators are for protection only against acid vapor and organic solvent vapor. They are for the use of regular employees only. Students should not be assigned tasks which require their use.

A physician designated by the college administration will determine whether employees are physically able to use respirators.

Before any employee may use a respirator, he/she will be instructed in the proper use of the respirator, including testing for proper fit. Proper fit will always be established using the odor producing substance provided.

These disposable respirators will be used only once and then discarded.

[\(back to table of contents\)](#)